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NOVEMBER 1991

Ontario
Environment
Environnement

14/11/91

ISBN 0-7729-8999-0

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Report prepared for:
Waste Management Branch
Ontario Ministry of the Environment

Report prepared by:
A.A. Wakeford, C.A., Treasurer
Proactive Recycling Inc.

NOVEMBER 1991

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PIBS 1732

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With the assistance of the 3 R's program we have brought to the printing industry the beginnings of an environmentally rational approach to waste management.

As with any pilot project with undeveloped and untested technology there have been hurdles to cross and problems to solve. We are happy to report the continuing successful development of our mobile ink recycling unit.

To fully understand what is successful development, one must consider the problems and objectives of the project at its outset.

The technology of low quality, fixed station, capital and labour intensive recycling equipment existed before the project began. What did not exist was equipment light enough, efficient enough and compact enough to establish a mobile service. The result was very little recycling of this waste type. Only waste from large producers was recycled and it carried a stigma of being an inferior product. There existed two major obstacles; the technological hurdle of mobility and quality and the psychological hurdle of the perception of recycled products being inferior.

Technology for a mobile system is considerably different than that of fixed station. From a physical point of view, there are strict height, width, breath and weight restrictions. From a commercial stand point processing time is of the essence. Recycling is the only function of this operation; there are no other factory duties that our men can attend to as the machinery operates.

Our technical objective had to be the development of equipment which was fast, small and light. In addition to this, since we would be attending a wide variety of printers, each with their own housekeeping habits, the system had to be versatile enough to handle a wide spectrum of contamination levels.

To say that these goals were difficult to achieve is, in our opinion, an understatement. During our first two years equipment was modified, tested, torn apart and re-modified innumerable times. Our stated goal was the processing of 540 kilos of ink within 25 minutes. Our actual initial performance was 60 kilos per hour. At this rate commercial viability was impossible.

To achieve commercial viability required improvements to both the speed and quality of production. This was achieved through the addition of multistage processing and the refining of processing procedures.

The environmental results are most encouraging. Todate we have kept over 117,000 kilos of ink from being buried in a hazardous waste landfill site. Not to mention the hundreds of pages of manifesting forms which no longer have to be generated.

But this is just a beginning. As we defeat the perception that recycled is inferior we continue to sign additional major printers. We have entered the final stages of Phase I, the development of a full four colour heat/cold set ink recycling system. We are currently now developing a program which will promote recycling of this waste by small generators; those generators could not afford to recycle in the past. We are also expanding the types of ink we recycling to include, sheet fed inks, forms ink and waterbase inks.

Regardless of the program the success revolves around three prime components. One, the cost and concern of landfilling hazardous waste; two, the cost savings provided by the recycling of ink previously thrown out; and three, the quality of the recycled product.

The increasing cost of landfilling hazardous waste has enhanced the cost effectiveness of recycling. By making the producer/user pay the cost of disposal one ensures that these costs are borne by the benefactor not by the unfortunate people living down stream or those drinking water near uncontained landfill sites. The increased awareness of our community members has ensured that these services are discussed, promoted and embraced.

Features regarding our company and its recycling successes have appeared in no less than five major industrial journals and two interviews with the CBC radio network. Articles regarding this project have been syndicated across Canada. We have been nominated by the Mayor of the City of Owen Sound as a candidate for the Manning Award which recognizes innovative Canadian achievements.

Coupled with the avoidance of landfill costs is the cost savings inherent in the recycling of ink. Corporately, we firmly believe that any recycling program must make the best use of our Province's limited resources. In environmental terms, if it cost twenty units of air polluting power to recycle one unit of ground polluting ink then there is no savings to the consumer, industry or the environment. It is a must that the recycling process be efficient enough to produce immediate and tangible cost savings to all three parties.

As a small company with low overhead costs, we have achieved an efficiency which allows us to recycle heat-set ink for approximately $2.50 per kilo. Virgin ink costs approximately $4.40 for black to $6.00 for the higher value yellows. We have met, in high order, the requirement of dollar cost savings.

In environmental terms the savings are equally substantial. For every 1,000 kilos of ink recycled only 20 kilos of waste remain. In addition to this the nature of the waste has changed. The waste remaining consists primarily of waste safety solvents and used filter bags. Our environment also benefits by the reduced exposure to storage and transportation mishaps. Obviously, if the recyclable material never leaves the generation site the probability of a highway accident or spill is nonexistent.

A recycling program increases the incentive to monitor and control the recyclable material. By participating in such a program the plant ensures that the amounts kept on site or in storage are kept to a minimum. If tyres were recycled beside the car in the garage the possibility of anything more than a four tyre fire would be impossible. An on-site recycling program ensures that the maximum amounts of material is recycled with minimum exposure and paperwork. Unfortunately, due to the capital commitments, on-site recycling is only feasible for the medium to large waste producer. We are currently addressing the needs of the small generator with the concept of centralized recycling facilities. Central to this concept is that the generator still holds title to their specific waste and is obligated to accept, use and become part of the recycling program.

The direct savings flow to administration costs as well. With an on-site recycling program, manifesting of the recyclable material is not required. In every sense the recyclable material has become another source of raw material for the printer. In plant, it never leaves the production cycle. The reduced volumes of waste stored in the plants both reduces the company's liability exposure and increases their work-in-progress space. Our mobile service provides trained technicians and expertise that an individual plant would find very difficult and expensive to develop and maintain. From an administrative stand point this service allows the plant to concentrate on their business of printing, not recycling. It improves their corporate image and reduces their environmental liability, this is in addition to assisting them to become a competitive low cost producer.

But cost savings alone are not enough. Quality is paramount. Recycled products have a tarnished quality image. Recycled paper tears, recycled steel rusts, we all have heard the horror stories of recycled products. This has caused major marketing problems for us in this quality conscience printing industry. An inferior product simply will not be accepted within this business community. To be successful we had to approach virgin ink standards. Fortunately, our first contract provided us with waste which was never segregated, stored in inclement conditions and was heavily contaminated. The result that our equipment was developed to meet the worse case scenario. We have found that under controlled collection conditions that the quality is sufficiently close to all standards to ensure a good runable product, with minimal restrictions on use.

The part the grant played in our development must be fully appreciated. As a small company with limited financial resources we had both advantages and disadvantages.

One obvious disadvantage is not having the financial strength to withstand costly re-modifications. Balanced against this is the speed and efficiency that re-modifications were made. Very little time or efforts were wasted in interdepartmental discussions, documentation and rehashings. If an idea did not work it was simply discarded and revamped. Since we were personally involved and committed it was and is highly unlikely that the same mistake would be made twice.

The grant compensated for our lack of financial strength and allowed us to continue our development unabated. Although the grant application processing time was longer than anticipated the payment was received at a time critical in our development.

The net result of marrying our small companies flexibility and commitment with the financial support of the grant has resulted in the development of a technically superior, four colour, mobile ink recycling system; the first in North America. We are now capable of annually preventing over 700,000 kilos of ink from being committed to a hazardous waste landfill site.

Our financial performance for the two years was far below budget. Technology development consumed more dollars and time than anticipated. When developing a new system it is always difficult to budget for the unknown. However, technical progress was at all times steady and positive.

Our greatest weakness was in the marketing sector. There was a strong resistance from the industry regarding the quality of the recycled product. To sell the recycling concept required that free recycling and press tests be performed. The recycling program also crossed typical plant departments such as maintenance (disposal), production (ink purchases) and administration (environmental liability). There was a distinct possibility that if only one contact was made that the saving accruing to the other departments would be ignored. Therefore marketing was and is multistaged, including plant maintenance, production management and administration. Marketing requires tenacity, persistence and follow-up; all of which takes time.

Compounding this, the large virgin ink producers took exception to our presence. In one instance, when we had been invited into a plant to recycle and press test the product, the ink company removed the on-site waste material and proposed that they would recycle it. This surprised us since this company appears to have neither the recycling technology nor the proper licenses to handle this waste. It was infuriating to know that this was an issue ignored by these large companies until we provided an alternative. To make this type of financial and personal commitment only to find one self competing with multi-nationals was most disconcerting.

Fortunately, the proposal presented by the ink company was described as 'totally unacceptable' by the printer. This printer now appears close to signing a contract. Unfortunately, this diversion cost us approximately a years lead time, a costly diversion at this stage in our development. Again the grant, in part helped us sustain this waiting period.

The future holds great potential for our company, the industry the consumer and the environment. If the major printers who are currently considering our program all participate, we will prevent thousands of kilos of liquid hazardous waste from being buried this coming year.

Our market area is rapidly expanding. As the only mobile four colour system in North America, we are generating interest as far a field as Winnipeg, Halifax, Montreal and Buffalo. We sincerely hope that the Province will be able to provide us some assistance in cutting through the red tape associated with crossing the border to operate in the United States.

The response to our marketing efforts indicates a need for both the recycling of other types of printers ink and the need to service the smaller waste generator. We are in the process of both determining whether these inks can technically and economical feasibly be recycled and establishing a program to service the smaller generator. We have recently received the necessary licenses from the Ministry of Environment to facilitate small waste volume hauling and recycling.

In summary, the past two years have proven to be most exciting and successful. Our financial picture is not what we would wish. However there is every indication that with the technological and psychological advances we have made, accompanied by the marketing inroads, that this coming year will prove most rewarding. Preventing thousands of kilos of hazardous waste from being introduced to landfill is a legacy that we are proud to leave to our children. Creating Canadian jobs, exporting Canadian technology and making this world a cleaner place to live is a noble goal and achievement. And this is just a beginning.